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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,834	03/16/2001	Chak Leung	P1283	2548

7590 03/31/2003  
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EXAMINER

LESTER, EVELYN A

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application

09/811,834

Applicant(s)

LEUNG ET AL.

Examiner

Evelyn A. Lester

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-20 is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,7 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 2,5 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3, 4, 6, 7 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neukermans et al (U.S. Patent 6,044,705) in view of Nishikawa et al (U.S. Patent 5,579,148).

Neukermans et al disclose a mirror assembly (Fig.5a) having a moveable mirror (156) and means for electromechanically rotating the mirror to steer an optical beam in a two-dimensional space (col.16, lines 1-3; also note col. 17, lines 16-43). Further, Neukermans et al discloses a first support member (34b) and a second support member (34a), and wherein the mirror is rotatable in relation to the first support member and the first support member is rotatable in relation to the second support member (inherent by the nature of the torsional springs 34a and 34b within the supporting structure and the mirror). The mirror is rotatable in relation to the second support member in two dimensions (note col. 16, lines 1-3). The mirror is suspended in relation to the first support member by a "wire" or torsional spring (34b) and the first support member is suspended in relation to the second support member by a "wire" or torsional spring (34a). The means for rotating the mirror has at least one coil (182) associated with the

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first support member and at least one magnet associated with the second support member, and wherein energizing the coil applies rotational torque to the first support member in relation to the second support member (note col. 17, lines 25-43).

However, the mirror of Neukermans et al is not substantially non-silicon reflector. Nishikawa et al discloses a mirror assembly that is formed with substantially non-silicon reflector (note Figures 2 and 11; and col. 5, lines 45-60). It would have been obvious to one of ordinary skill in the art to make the mirror assembly of Neukermans et al with substantially non-silicon material as taught by Nishikawa et al for the purpose of increasing adhesion between the substrate and the mirror material that is formed on the substrate, so that the longer operational period can be obtained from the mirror assembly.

***Allowable Subject Matter***

2. Claims 14-20 are allowed.
3. Claims 2, 5 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not show or fairly suggest the claimed subject matter/invention of a mirror assembly having the claimed structure and claimed limitations, wherein a rejection under 35 USC 102 or 103 would be improper. Please particularly note the

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combination of claimed elements and claimed limitations, including as recited in claims 14-20, the non-MEMS mirror having substantially non-silicon reflective surfaces, and as recited in claims, at least one coil coupled to each mirror and at least one magnet coupled to each coil. Also as recited in claim 2, the combination of claimed elements, including the non-MEMS mirror; in claims 5 and 8, the serpentine shape of the supporting wire. Therefore, the indicated claimed subject matter/invention is considered to be allowable as being novel and nonobvious over the prior art.

### **Conclusion**

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evelyn A. Lester whose telephone number is (703) 308-4943. The examiner can normally be reached on M- F, subject to I-flex schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (703) 308-4883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Evelyn A. Lester  
Primary Examiner  
Art Unit 2873

March 20, 2003